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LAW OFFICES

LEE J. GARY

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FRANK L. BELKNAP-1933
LEE J. GARY
W. F. DESMOND
J. M. PARKER
C. H. BASSETT
J. T. CULLINAN

February 1, 1949.

Frost Mfg. Co.,
Kenosha,
Wisconsin.

Attention: Mr. M. Frost.

re: Adjust-All Waste

Dear Sir:

In compliance with your request we have made a novelty search upon the above invention and we call the following enclosed patents to your attention:

1,678,783	July 31, 1928	Oakley
2,260,616	Oct. 28, 1941	Groeniger
2,256,758	Sep. 23, 1941	Groeniger
771,812	Oct. 11, 1904	Crawford
773,569	Nov. 1, 1904	Holmes
880,156	Feb. 25, 1908	McCaffrey
1,059,438	Apr. 22, 1913	Clark
2,379,669	July 3, 1945	Warren

In our opinion we do not find that any of the patents disclose a waste construction which performs the various functions performable by your device. We believe that the patent to Oakley No. 1,678,783 is the most pertinent in that Oakley shows the use of two swivel joints 17 and 18. However, the waste connections 12 and 22 are not adjustable and it would appear that if the single drain openings were at different distances apart the length of the pipe 11 would have to be changed.

The patent to Groeniger 2,260,616 shows an arrangement whereby the connections to the drain openings in a single movement can be changed insofar as their distance apart is concerned. However, the Groeniger patent contemplates a sweated and not a swivel connection.

Within certain limits the device shown by Crawford 771,812 can be adjustable in that the pipes F are telescopically removable with respect to the fitting G.

. LEE J. GARY

Mr. Frost

- 2 -

February 1, 1949.

The remaining patents, in our opinion are not as pertinent as the ones discussed above and as mentioned previously we do not believe that any of them show a construction which is equivalent to yours. Consequently we believe there is a possibility of obtaining patent protection upon your structure.

In the event that you wish us to proceed with the preparation and filing of the patent application, will you kindly have Mr. Tuttle supply us with a sectional view of one of the swivel joints. In addition, kindly furnish us with the full name or names of the inventors and his or their addresses.

We have received from our Washington associate the device which you forwarded to him.

Very truly yours,

A handwritten signature in cursive script, reading "Lee J. Gary". The signature is written in dark ink and is positioned to the right of the typed name "D:s".

D:s
encs

R. CLARK.
PIPE COUPLING.

APPLICATION FILED JULY 10, 1912.

1,059,438.

Patented Apr. 22, 1913

Fig. 1.

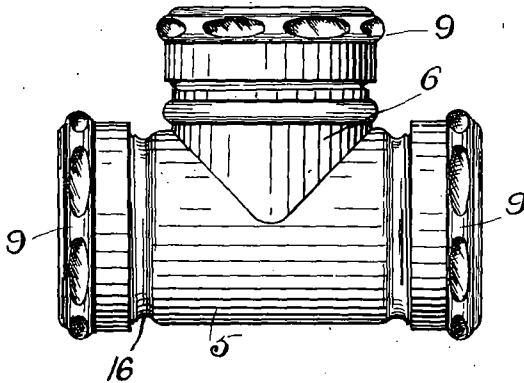


Fig. 4.

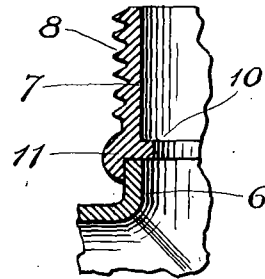


Fig. 2.

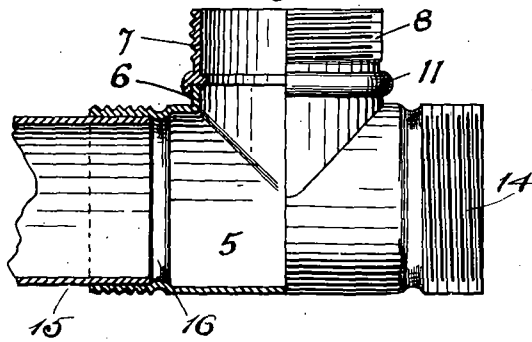
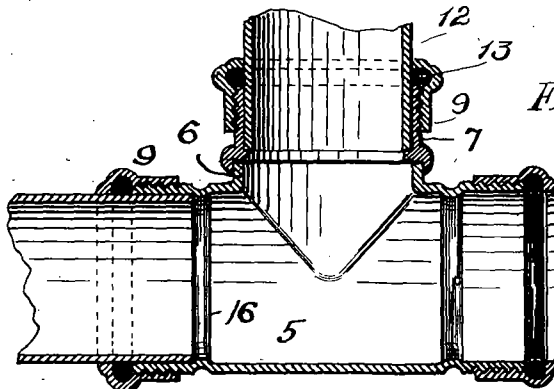


Fig. 3.



WITNESSES:

J. S. Coleman
M. Q. Williams

INVENTOR:

Robert Clark,
BY
Black & Fisher
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ROBERT CLARK, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO BRIDGEPORT BRASS COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

PIPE-COUPLING.

1,059,438.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed July 10, 1912. Serial No. 708,587.

To all whom it may concern:

Be it known that I, ROBERT CLARK, a citizen of the United States, residing in Bridgeport, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Pipe-Couplings, of which the following is a full, clear, and exact description.

This invention relates to pipe couplings, and has special reference to means for coupling a pipe to a branch wrought from the intermediate portion of a sheet metal body or union to form a T. The invention is not limited in all of its aspects, however, to the connection of a pipe to a T body, as the character of the main portions of the two bodies to be connected is more or less immaterial.

The primary object of the invention is to provide a very strong and durable connection between a part such as a wrought branch in a T, and an intermediate supplemental section set on said branch for the purpose of securing a pipe or other member thereto, the means for reinforcing the joint between the branch and the supplemental section having the additional function of positioning the pipe properly with respect to the T or other member.

To this and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing, Figure 1 is a side elevation of the T body with the nuts in place on the respective branches, Fig. 2 is a view partly in elevation and partly in section, with the nuts removed. Fig. 3 is a vertical longitudinal section of the device with two of the couplings completed, and Fig. 4 is a detail sectional view of one of the branches of the T body.

Referring to the drawing, 5 indicates a T body formed of sheet metal, having an integral tubular branch 6. On top of the open branch 6 is placed a separate supplemental section 7, as shown in Fig. 4. This section is of sleeve-like form and is provided with exterior screw threads 8 on which a nut 9 is screwed. The sleeve-like body of the section 7 has approximately the same internal diameter as the branch 6. At its lower extremity it is projected laterally beyond the upper edge of the branch 6 to form at one

side an internal shoulder 10, and at the opposite or outer side it presents a bead 11. The section 7 is secured to the branch 6 by having its bottom edge placed directly on the top edge of the branch 6, after which the bead 11 is clenched against the adjacent portion of the branch 6, the connection being completed by the use of solder. In this manner a very simple and inexpensive connection is made. The shoulder 10, projecting inwardly from the section 7 at the lower edge of the latter and overhanging the top edge of the upwardly extending branch of the T body, provides a seat for a pipe 12 set in the section 7, as shown in Fig. 3. The pipe 12 is thereby effectively supported on the shoulder or flange 10 and it is held in place by means of the nut 9 which compresses a gasket 13 against the outer surface of the pipe in a well known manner. The shoulder 10, which is preferably squared off at the top and bottom, not only has the function of supporting the pipe 12 in the proper position with respect to the T, but also of strengthening very materially the joint between the branch 6 and the supplemental section. This arises from the fact that by the construction described the lower end or base of the supplemental section, where the latter rests on the branch 6, is materially thicker than the wall of said branch and overhangs the latter at opposite sides, as shown in Fig. 4. Hence the supplemental section has a firm and substantial bearing on the branch, and in case solder is used in making the connection, as described, it will be obvious that the comparatively extensive surfaces of the branch and section which are located close to or in contact with each other form a substantial anchor for the adhesive material.

The two ends of the T body are provided with threaded portions 14, which may be spun in the sheet metal, and on these threaded portions are fitted nuts 9 similar to that previously mentioned. In this case the pipe (Fig. 2) is positioned in the mouth of its corresponding branch by means of a stop bead 16 formed integrally with the wall of the T by spinning. This bead projects inward at a suitable distance from the mouth of the corresponding branch in order to engage the edge of the pipe 15 and thereby limit the extent to which the pipe may be

shoved into the T body, as will be understood. The spun bead 16 forms an especially inexpensive yet effective form of stop.

In assembling the parts, as shown in Fig. 3, the pipes 12 and 15 are thrust into their respective branches until the edges of said pipes abut the respective stop members. The nuts 9 engage the threads of the respective branches in order to compress the gaskets against the respective pipe sections. The assemblage is very easy and yet the parts are accurately positioned so that the T joint will operate without leakage and without obstruction caused by the displacement of the pipe ends in an inward direction.

Without limiting myself to the precise construction shown I claim:

1. In a pipe coupling, the combination with a pipe, and a tubular member with which it is to be connected, having an open end, of a supplemental section formed of a sleeve-like body seated on the open end of said tubular member, said section having a base portion thicker than the mouth portion of the tubular member on which it rests and constituted by an exterior bead extending over the outer surface of the tubular member, and a shoulder projecting inwardly from said section immediately above the mouth of said tubular member to reinforce the joint and to seat the pipe in said section, and a nut on said section to secure the pipe therein; substantially as described.

2. As an article of manufacture, a sheet metal T body having a branch wrought therein and provided with an open end or mouth, in combination with a supplemental section having a base portion of greater thickness than and seated on the mouth of said branch, said base portion being constituted by a bead extending over the outer

surface of said branch, and by a shoulder projecting inward from the section immediately adjacent the joint between the latter and the branch and overhanging the mouth of the branch at the inside; substantially as described.

3. As an article of manufacture, a sheet metal T body having a branch wrought therein and provided with an open end, in combination with a supplemental section having a widened base set on the open end of said branch and constituted by a bead extending over the outer surface of the branch, and a squared off shoulder projecting inward beyond the inner surface of said section approximately in line with said bead and affording a stop for a pipe inserted in said section; substantially as described.

4. As an article of manufacture, a sheet metal T body having a branch wrought therein and provided with an open end or mouth, in combination with a supplemental section having a base resting on and of greater width than the mouth of said branch, said base being constituted by a bead at the outside of the section extending over the outer surface of the branch, and a shoulder projecting inward from the inner surface of said section approximately in line with said bead, said shoulder being squared off at the bottom to make a substantial joint with the branch, and squared off at the top to seat a pipe in said section; substantially as described.

In witness whereof, I have hereunto set my hand on the 9th day of July, 1912.

ROBERT CLARK.

Witnesses:

HENRY E. ROCKNELL,
SAMUEL H. FISHER.

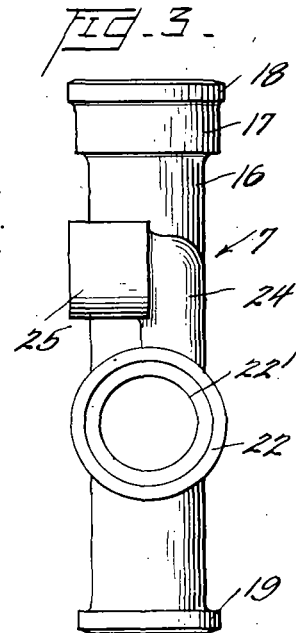
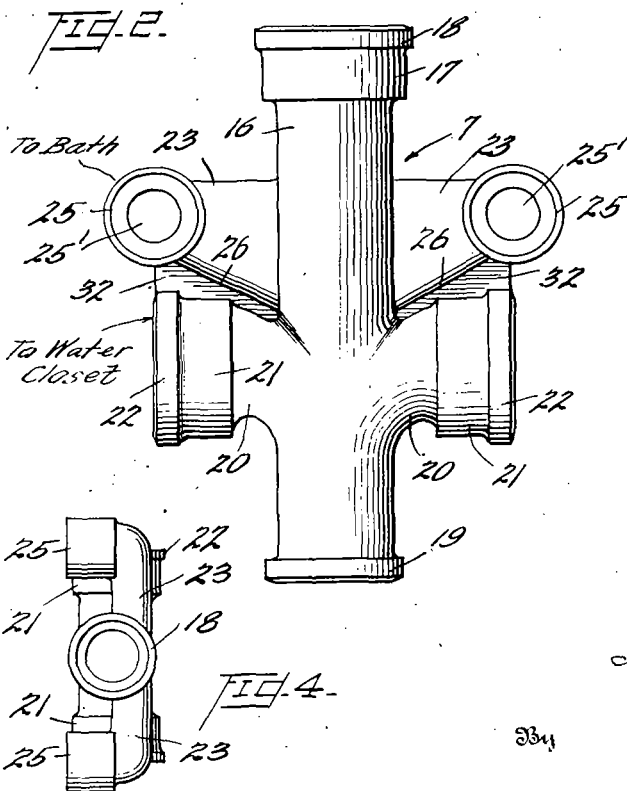
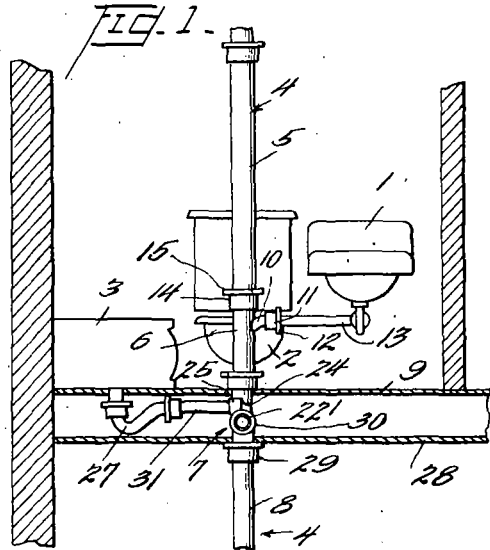
July 3, 1945.

F. A. WARREN

2,379,669

FITTING FOR PLUMBING SYSTEMS

Filed Aug. 11, 1941



Inventor
Frederick A. Warren
Shreve, Brown & Gordon
Attorneys

334



UNITED STATES PATENT OFFICE

2,379,669

FITTING FOR PLUMBING SYSTEMS

Frederick A. Warren, Atlanta, Ga.

Application August 11, 1941, Serial No. 406,359

5 Claims. (Cl. 285-210)

Generically this invention relates to a fitting used in plumbing systems and especially in connection with bath tubs, water closets, wash basins, etc.

One object of this invention is the provision of a single casting for plumbing stack fitting known to the trade as a gang fitting and is a combined closet and bath waste and vent fitting adapted to occupy a minimum of space and to save labor in installation.

An important object of this invention is the provision of a plumbing stack fitting made in a single form known as a T and also in a double form known as a cross or code-cross adapted to eliminate extra vents with a comparatively small opening for bath tub connections, and below, a large opening for closet bowl outlet, and so positioned as to eliminate calked joints and bends heretofore required in waste fittings.

One of the principal objects of this invention is the provision of a plumbing fitting comprising an integral casting formed with a main soil or waste passage, lower large closet waste passage extending at right angles from said main passage and upper smaller similarly extending bath waste passage communicating with said main passage, the upper part of said main passage acting as a vent to prevent siphonage of bath traps, thereby eliminating extra vents, the relative positions of said upper and lower passages being such that when the fitting is operatively positioned in the main soil or stack line, calked joints, bends and extra connections are eliminated.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawing, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a similar view showing the arrangement with my improved T or code-cross fitting.

Fig. 2 is an elevation of my improved fitting.

Fig. 3 is a view at right angles to Fig. 2.

Fig. 4 is a top plan view of Fig. 2.

Briefly, my plumbing stack fitting, T or code-cross fitting is a combined closet and bath waste and vent fitting comprising an integral casting having a large opening for closet waste, and above, a small opening for bath waste. The upper wall of bath opening communicating with the vent opening at right angles while the lower wall may vary in degree of flow toward vent opening, the bath opening located at a point whereby;

when said fitting is placed in waste stack the large lower opening pointing directly to closet bowl outlet, the upper smaller bath opening is automatically on a direct line with bath tub waste, thereby eliminating extra vents, calking joints and bends heretofore required, and also designed to save time and labor in installation in connection with the furring of ceiling in order to conceal the plumbing pipes, etc.

10 In Fig. 1 there is shown a wash basin 1, closet bowl 2, bath tub 3, and stack waste line 4.

The portion of the stack or main soil line 4 as shown in Fig. 1 comprises sections 5, 6, code-cross section 7, and section 8. Section 6 is positioned just above the floor 9 and is formed adjacent its upper end with a branch 10 formed with hub 11, terminating in flange 12 adapted to receive one end of pipe 13, the other end of which is connected to basin 1, the upper end of said section 6 is formed with an enlarged upper end 14 terminating in flange 15 adapted to receive the lower end of section 5 as will be well understood.

My improved code-cross section 7 comprises a 25 vertically extending pipe or main body portion 16 terminating at its upper end in the elongated hub and flange portions 17 and 18, respectively, and at its lower end in flange 19. Spaced above its lower end section 7 is formed with branches 30 20 extending substantially at right angles outwardly from diametrically opposite sides of portion 16 and terminating in the enlarged hub and flange sections 21 and 22, respectively, and constituting the closet openings 22' as will hereinafter more fully appear.

Above the branches 20 in substantial vertical alignment therewith and extending from pipe 16 are the diametrically opposite branches 23 formed with the right angularly extending portions 24 40 terminating in the enlarged hub portions 25 projecting at right angles to hub portions 21 and constituting bath openings 25' of smaller diameter than openings 22'. The branches 23 from the right angular extending portions 24 adjacent hubs 25 expand downwardly to section 16 at points immediately above branches 20 forming the inwardly and downwardly inclined walls 26. This construction provides large openings, at points of intersection with the main body portion 16 and terminates in the comparatively small openings 25' located above the large closet openings 22' and connected to section 16 so that the upper part of said section acts as a vent and prevents the bath trap 27 from siphoning; as will directly more fully appear. Code-cross section 7

is mounted under floor 9 with hub portion 17 extending above the floor and adapted to receive the lower end of section 6 as clearly shown in Fig. 1, the lower end extending through the ceiling 28 and received by the hub portion 29 of main soil line 8.

The discharge end of closet bowl 2 is received in opening 22' of hub 21, the opposite opening 22', as at 30, adapted to be similarly connected to the lower end of closet 2 of an adjacent assembly, as shown in Fig. 1, located on the opposite side of a partition wall not shown. The trap 27 is suitably connected to the outlet of bath 3, and, by a suitable pipe 31 to inlet opening 25', the free end of which is adapted to be received by hub 25 and effects communication with said bath opening 25' as will be clear without further discussion. In this connection it will be noted that branches 20 and 23 are connected by the vertical web 32 which unites them into a unitary structure.

It will be noted that where only one bath installation is necessary, branches 20 and 23 on one side of the code-cross 7 may be plugged, thereby constituting in effect a single or T fitting, or a T casting formed with said branches on one side only may be installed, and in either case the fitting is compact, and Fig. 1 shows how the closet and bath can be connected to the single stack waste and vent line 4 within the space between 10' joists, that being the distance between floor 9 and ceiling 28, and constituting a sanitary installation, and eliminating the vent or vents and the necessity of furring the ceiling below, as required in connection with the prevailing constructions.

It will be apparent that I have constructed a plumbing fitting adapted to occupy a minimum of space and which is a combined closet, bath waste, and vent fitting comprising an integral casting, the small bath openings being placed above the large closet openings and connected to the main body section 16 so that the upper part of said section acts as a vent and prevents siphonage of bath trap or traps. Such construction not only affords the advantages above noted but also eliminates additional vent piping, heretofore in use, as well as separate vents for the bath traps. Also the relation of the closet and bath openings and their location are such that when the T or code-cross fitting is operatively positioned in the stack or main soil line with the lower large openings pointing directly to the closet bowl outlet, the upper small opening is automatically positioned in a direct line for connection with the bath waste outlet, thereby eliminating the calked joints and bends heretofore required.

From the above it will be apparent that by the use of my improved fitting the vent heretofore prevalent is eliminated as well as the added expense for vents for the respective bath traps, and by my construction the portion of the main body or stem disposed above the bath branches acts as a vent to prevent siphonage of the bath trap, and the relative positions and arrangement of the bath and closet branch outlets is such that when the fitting is operatively positioned in the soil line, for instance, with the large closet inlet opening facing the closet outlet, the bath inlet will be in a direct line with the bath trap outlet, thereby eliminating the prevailing calked joints and bends, and in addition I have provided an integral fitting, simple in construction, manufacturable at a minimum of expense, adapted to effect a sav-

ing in time and labor incident to installation, and efficient for the purposes intended.

Although in practice it has been found that the form of the invention illustrated in the accompanying drawing and referred to in the above description as the preferred embodiment is the most efficient and practical; yet realizing the conditions concurrent with the adoption of the invention will necessarily vary, I desire to emphasize that various minor changes in details of construction, proportion and arrangement of parts, may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of this invention.

Having thus described my invention, what I desire, protected by Letters Patent is as set forth in the following claims:

1. A gang fitting of the character described adapted to be inserted in the length and to form a continuation of a waste stack comprising a hollow stem portion, bath and closet branches extending from the stem portion and in spaced relation, that portion of the stem disposed above the bath branch acting therewith as a vent to prevent siphonage of the bath trap, said branches terminating in bath and closet inlets, said bath branch being formed with a horizontal and inclined wall portion forming a downwardly and outwardly flared passage opening into the stem portion whereby to provide superimposed paths for air and water.

2. A plumbing fitting adapted to be inserted in the length and to form a continuation of a waste stack comprising a hollow stem portion, said portion having a branch projecting therefrom spaced from its lower end for connection with a water, closet outlet, and a similarly extending upper branch having an opening at its free end for connection with a bath outlet, that portion of the stem disposed above said bath branch acting therewith as a vent to prevent siphonage of the bath trap, said bath branch being formed with a horizontal and inclined wall portion forming an outwardly flared passage terminating in an enlarged opening communicating with the stem portion whereby to provide superimposed paths for air and water, the bottom wall of said branch inclining downwardly to the enlarged opening.

3. A plumbing fitting adapted to be inserted in the length and to form a continuation of a waste stack comprising a hollow stem portion, opposite closet branches extending from said stem, spaced from its lower end, and opposite similarly extending upper bath branches, that portion of the stem disposed above the bath branches acting as a vent to prevent siphonage of the bath traps, said branches terminating in closet and bath inlets, each of said bath branches being formed with a horizontal and inclined wall portion forming a downwardly and outwardly flared passage terminating in an enlarged opening communicating with the stem portion, the bottom wall of said branch inclining downwardly to the enlarged opening whereby to provide superimposed paths for air and water.

4. A plumbing fitting adapted to be inserted in the length and to form a continuation of a waste stack comprising a hollow stem portion, upper bath and lower closet branches in spaced relation extending from opposite sides of said stem portion, that portion of the stem disposed above the bath branches acting therewith as a vent to prevent siphonage of the bath traps, said branches terminating in bath and closet inlets

normal to each other, said bath branches being formed with horizontal and inclined wall portions forming downwardly and outwardly flared passages terminating in enlarged openings communicating with the stem portion whereby to provide superimposed paths for air and water, the bottom walls of said branches inclining downwardly to the enlarged openings.

5. A plumbing fitting of the character described adapted to be inserted in the length and to form a continuation of a waste stack comprising a hollow stem section, said section having a branch projecting therefrom spaced from its lower end terminating in a substantially large inlet opening for direct connection with a water closet, and

an upper similarly extending branch terminating at its free end in a smaller inlet opening normal to said large opening for direct connection with a bath, that portion of the stem disposed above said bath branch acting therewith as a vent to prevent siphonage of the bath trap, said bath branch being formed with a horizontal and inclined wall portion forming a downwardly and outwardly flared passage terminating in an enlarged opening communicating with the stem portion whereby to provide superimposed paths for air and water, the bottom wall of said branch inclining downwardly to the enlarged opening.

FREDERICK A. WARREN.

Oct. 28, 1941.

W. C. GROENIGER

2,260,616

TRAP DEVICE FOR TRAPPING WASTE OUTLETS

Filed Sept. 27, 1939

2 Sheets-Sheet 1

Fig. 1.

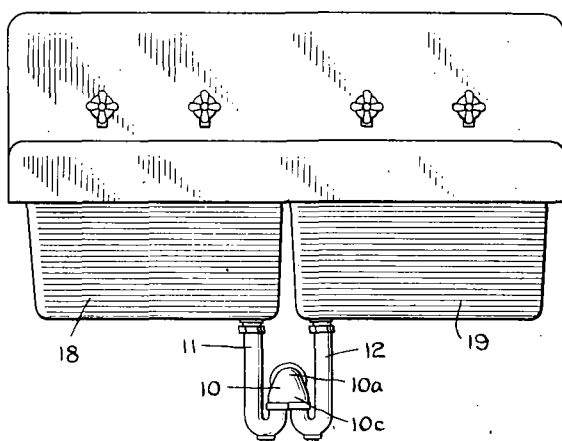


Fig. 2.

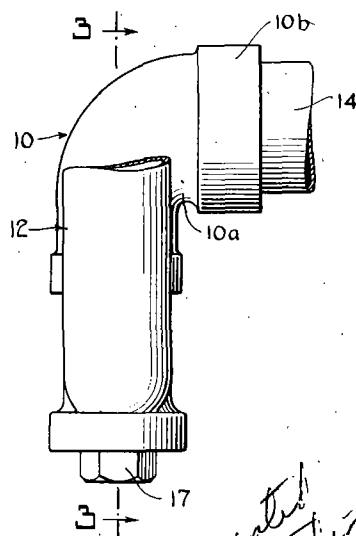


Fig. 3.

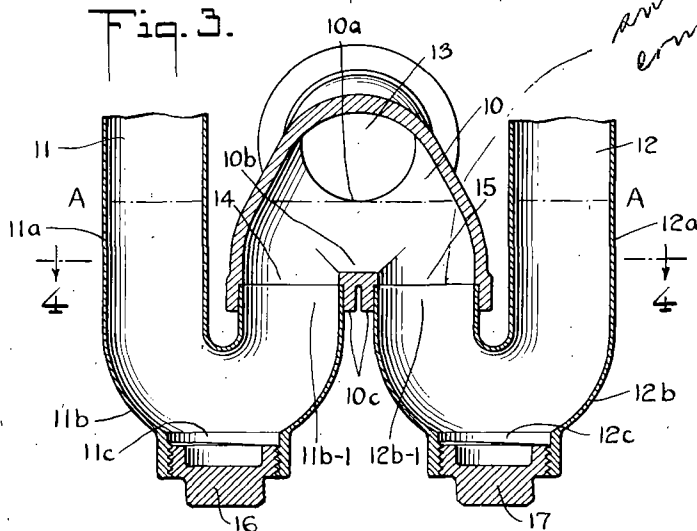
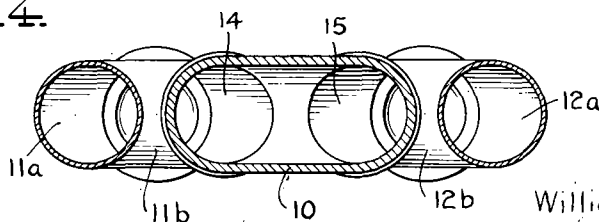


Fig. 4.



INVENTOR

William C. Groeniger

BY *Henry J. Lucke*
HIS ATTORNEY

HIS ATTORNEY

Oct. 28, 1941.

W. C. GROENIGER

2,260,616

TRAP DEVICE FOR TRAPPING WASTE OUTLETS

Filed Sept. 27, 1939

2 Sheets-Sheet 2

Fig. 5.

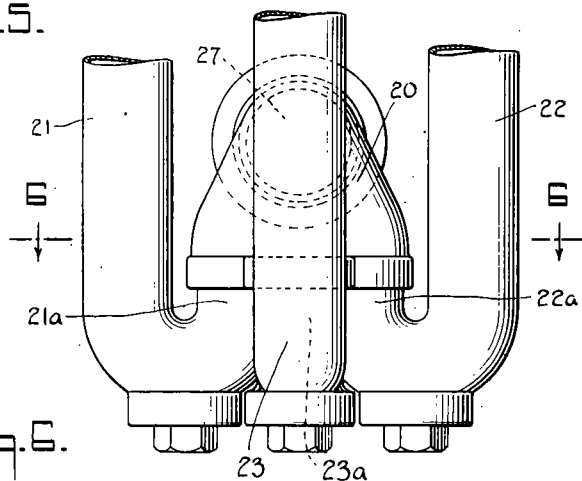


Fig. 6.

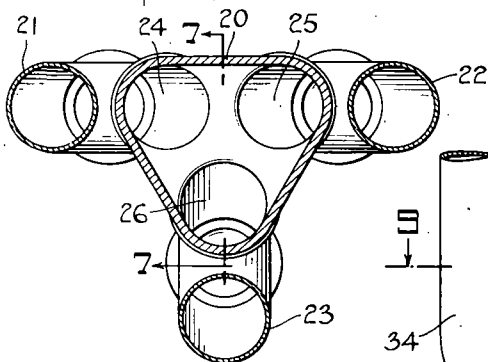


Fig. 8.

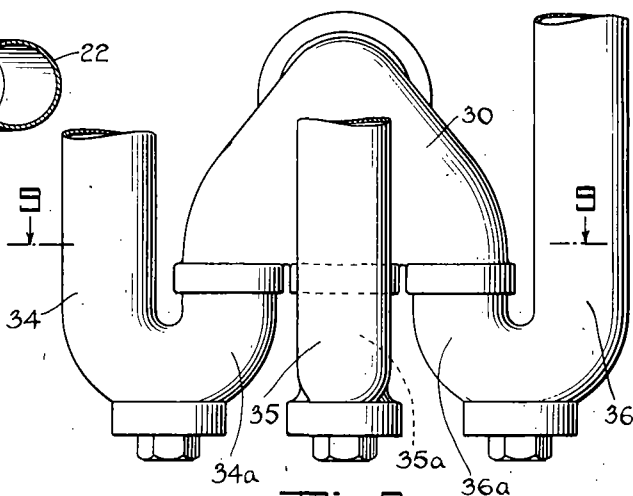


Fig. 7.

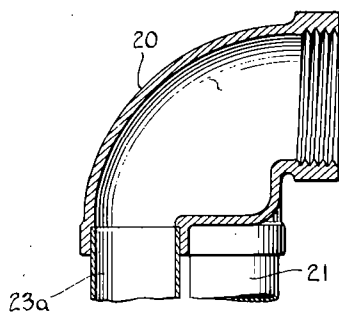
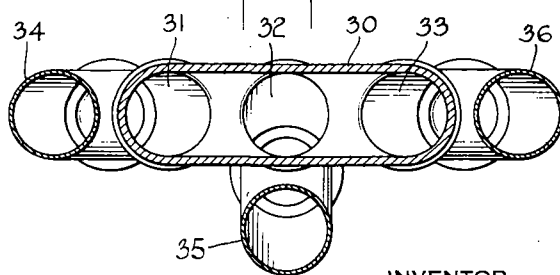


Fig. 9.



INVENTOR
William C. Groeniger
by *Henry J. Lucke*
HIS ATTORNEY

UNITED STATES PATENT OFFICE

2,260,616

TRAP DEVICE FOR TRAPPING WASTE OUTLETS

William C. Groeniger, Columbus, Ohio, assignor
to John B. Pierce Foundation, New York, N. Y.,
a corporation of New York

Application September 27, 1939; Serial No. 296,774

5 Claims. (Cl. 182-18)

This invention relates to fixture trap devices useful in the plumbing art for stopping return flow of noxious gases from waste outlets, and in particular to fixture trap devices for trapping a plurality of waste outlets, in common, with respect to a single soil or other waste discharge pipe.

When several waste outlets are trapped in common with respect to soil, or other waste piping, it is customary practice to run the waste outlet piping into the trap device above the trap seal whereby free passage is afforded between the several waste outlets, one with the other or others, even though each is trapped relative to the soil or other waste piping. Such practice leads to air circulation through the freely interconnected waste outlets when the piping is heated, and to a consequent malodorous discharge of air from the waste drains of the plumbing fixtures when the piping has accumulated an internal coating of waste matter.

Further, it is customary practice to so connect the waste outlet piping with the trap device as to direct flow therefrom at a relatively great angle to the general flow through the trap device, thus impeding to a considerable extent, flow into and out of the trap device.

An object of the present invention, therefore, is to provide a trap device capable of trapping, in common, with respect to waste or soil piping, a plurality of waste outlets, and to, at the same time, trap the individual waste outlets, one with respect to the other or others.

An object is to provide a trap device which will unite the fluid streams flowing from the plurality of waste outlets while such streams are flowing in substantially the same direction substantially without flow restriction.

An object is to provide a novel type of pipe fitting for association with the piping or with other pipe fittings in the formation of a trap device in accordance with the invention.

An outstanding feature of the invention is the provision, in a trap device, of a plurality of down legs disposed in substantially parallel side-by-side relationship, each having a curved lower end which intersects the lower end of a single up leg, common to all, to form therewith a return bend trapway. Accordingly, each of the down legs cooperates with the single up leg to provide a trapway which serves to trap a waste outlet with respect to soil or waste piping, as well as with respect to other waste outlets utilizing the same trap device.

Further features and objects of the invention will be apparent from the following detailed description.

In the drawings:

Fig. 1 represents a front elevation of two laundry trays trapped in common by a preferred form of the present invention, the trap device being also illustrated in front elevation.

Fig. 2 represents a left side elevation of the trap device of Fig. 1, enlarged.

Fig. 3 represents a vertical section taken on the line 3-3, Fig. 2.

Fig. 4 represents a horizontal section taken on the line 4-4, Fig. 3.

Fig. 5 represents a front elevation of another embodiment of trap device pursuant to the present invention.

Fig. 6 represents a horizontal section taken on the line 6-6, Fig. 5.

Fig. 7 represents a vertical section taken on the line 7-7, Fig. 6.

Fig. 8 represents a front elevation of still another embodiment of trap device pursuant to the invention.

Fig. 9 represents a horizontal section taken on the line 9-9, Fig. 8.

The fixture trap device, illustrated in Figs. 1 through 4 of the drawings, comprises an up leg fitting indicated generally by the numeral 10, and individual down leg fittings, indicated generally by the numerals 11 and 12, respectively, and represents one embodiment of the present invention.

The up leg fitting 10 has its upper end portion elbowed to form the crown weir 10a of the trap, see Fig. 3, and has formed thereat an outflow opening 13. The walls which define the outflow opening 13 are formed to receive outflow piping 14 in a sweated or otherwise water-tight joinder of a type conventional in the plumbing art. The body portion of the up leg 10 diverges downwardly to a lower end portion 10b which has a plurality of bottom inflow openings, indicated 14 and 15, Figs. 3 and 4. The walls 10c, 10c, which define the inflow openings 14 and 15, respectively, are formed to receive connecting ends of the down legs 11 and 12, respectively, in a sweated or otherwise water-tight joinder conventional in the plumbing art.

It should be noted that inflow openings 14 and 15 lie side by side, in the preferably single plane of the bottom of the lower end portion 10b of the up leg fitting 10, and that the inflow passages formed thereby are substantially parallel and directed in substantially the same directions upwardly toward the outflow opening 13. The walls

of the body portion of up leg 10 curve to provide relatively smooth passage through the fitting.

The down legs 11 and 12, as illustrated, comprise down legs proper 11a and 12a, respectively, and, at the lower ends of the latter, bend portions 11b and 12b respectively. The bend portions 11b and 12b, are of substantially U-bend formation having short legs 11b-1 and 12b-1, respectively, and thus form return bend portions of the completed trap. Clean out openings 11c and 12c, respectively, may be provided in the bottom walls of the return bend portions 11b and 12b, respectively, and the walls defining the same may be internally threaded for receiving the externally threaded clean out plugs 16 and 17, respectively.

As will be noted in Fig. 1, the down legs 11 and 12 connect in customary manner with the waste outlets of the laundry trays 18 and 19, respectively. Accordingly, the two laundry trays 18 and 19 are trapped relative to each other, and, individually, relative to the waste piping 14, it being understood that the upper limit of the trap seal is established at the level of the crown weir 10a, see the dotted line A-A, Fig. 3.

Considered as a unit, the lower, i. e. U-bend, portion of each of the individual down legs 11 and 12 combines with a respective individual lower portion, i. e. bottom opening portion 14 or 15, of the single up leg 10 to form individual return bend portions, of the trap device.

By reason of the placement and formation of the inflow openings 14 and 15 in the lower end of up leg 10, and, also, of the formation of the lower ends of the respective down legs 11 and 12, waste liquid flowing through the trap device from the plurality of plumbing fixtures will unite along substantially straight angles while flowing in substantially the same direction.

In most instances, it is advisable to provide the outflow opening 13 of greater cross sectional area than that of the individual inflow opening 14 or 15, for accommodating simultaneous flow through the plurality of down legs.

In the above described embodiment, provision is made for trapping two waste outlets, the two down leg fittings 11 and 12 running substantially parallel at opposite lateral sides of the single up leg fitting 10. Obviously, as convenience dictates, the down leg fittings 11 and 12 may be placed relative to each other and to the single up leg fitting 10 at any non-interfering locations within the ranges of rotation of the down legs proper 11a and 12a, about the inflow openings 14 and 15, respectively, as centers.

As illustrated in Figs. 5 through 9, the fixture trap device of the invention may be adapted to trap a greater number than two waste outlets, without sacrificing the advantageous features of the invention.

Figs. 5, 6 and 7 illustrate a construction of the single up leg fitting, here indicated 20, which is adapted to receive three short leg fittings, here indicated 21, 22, and 23, similar to those of the prior figures. The bottom of the single up leg fitting 20 is of triangular configuration, see Fig. 6, and is provided, at the three vertices thereof, with the inflow openings 24, 25, and 26, respectively. The fitting 20 diverges downwardly in an appropriate manner from the upper lateral outflow opening, indicated generally at 27, Fig. 5, the walls of the fitting being suitably curved to reduce restriction to flow to a minimum.

As is true in the embodiment of Figs. 1 through 4 the inflow openings 24, 25, and 26 preferably lie in the single plane of the bottom of up leg

fitting 20, and the short legs 21a, 22a, and 23a of the U-bend formations at the lower end of the down leg fittings 21, 22, 23 are substantially parallel for the purpose of uniting the fluid flows within the single up leg fitting 20 while such fluid flows are flowing in substantially the same direction.

For certain installations it may be desirable to provide the trap device of Figs. 1 through 4 for the trapping of more than two waste outlets without disturbing the primary structural characteristics peculiar to that embodiment.

In Figs. 8 and 9 is illustrated a trap device having an up leg fitting 30 similar in design to the up leg fitting 10 of the embodiment illustrated in Figs. 1 through 4, but elongated laterally to accommodate three openings, indicated 31, 32, and 33, respectively, Fig. 9, in substantially rectilinear alignment along the width of the fitting.

Down leg fittings 34, 35, and 36, similar to the above described down leg fittings, have the short legs 34a, 35a, and 36a of their respective U-bend portions connected with the inflow openings 31, 32, and 33, respectively. The short legs 34a, 35a, and 36a are substantially parallel, as is the case in the prior embodiments, and accordingly, provide for the uniting of the fluid streams from same along substantially straight angles and in substantially the same direction within the single up leg 30. The lateral out flow opening from up leg 30 is arranged and directed as are those similar out flow openings of the prior embodiments.

Obviously, more than three inflow openings may be provided in the bottom wall of either up leg 20 or up leg 30, and a correspondingly increased number of down legs provided, if it should be found desirable to do so, by simply enlarging the lower part of the up leg in a suitable manner.

In all embodiments of the invention the primary concern is the uniting of a plurality of streams from waste outlets substantially without restriction to flow. This is accomplished most effectively by conducting the streams to a common meeting place without restricting the passages through which the streams flow into the common meeting place, and while such streams are flowing in substantially parallel relationship in substantially the same direction. The illustrated and described embodiments are merely examples of satisfactory constructions. Many structural changes may be made without departing from the generic scope and spirit of the invention set forth herein and in the following claims.

I claim:

1. A fixture trap device comprising a plurality of individual down legs having curved lower ends, respectively, and a single up leg having a substantial horizontal bottom wall through which a plurality of individual openings are formed, the respective lower ends of said plurality of down legs being connected with the respective openings of said plurality of openings in the said bottom wall to form return bend portions of said trap device.

2. A fixture trap device comprising a plurality of individual down legs, a single up leg, and individual bend portions respectively connecting the respective down legs with the said up leg, said down legs and said up leg being substantially parallel and extending substantially vertically, providing for the uniting of the individual flows

therethrough along substantially straight angles.

3. A fixture trap device comprising a plurality of down legs having lower ends, respectively, of substantially U-bend formation, and a single up leg having a plurality of bottom openings, the respective short legs of said U-bend formations being connected with the respective openings of said plurality of bottom openings in said up leg to form return bend portions of said trap device.

4. A fixture trap device comprising a plurality of individual down legs having curved lower ends, respectively, and a single up leg having a plurality of individual openings formed in its lower end, the respective lower ends of said plurality of down legs being connected with the respective openings of said plurality of openings in the lower end of said up leg to form return bend portions of said trap device, said individual openings

lying in a common plane and said down legs and said up leg being substantially parallel, providing for the uniting of the individual flows therethrough along substantially straight angles.

5. A fixture trap device comprising a plurality of down legs having lower ends, respectively, of substantially U-bend formation, and a single up leg having a plurality of bottom openings, the respective short legs of said U-bend formation being connected with the respective openings of said plurality of bottom openings in said up leg to form return bend portions of said trap device, said bottom openings lying in substantially a common plane and said down legs and said up leg being substantially parallel, providing for the uniting of the individual flows therethrough along substantially straight angles.

WILLIAM C. GROENIGER.

July 31, 1928.

1,678,783

E. G. OAKLEY

WASTE CONNECTION

Filed March 22, 1927

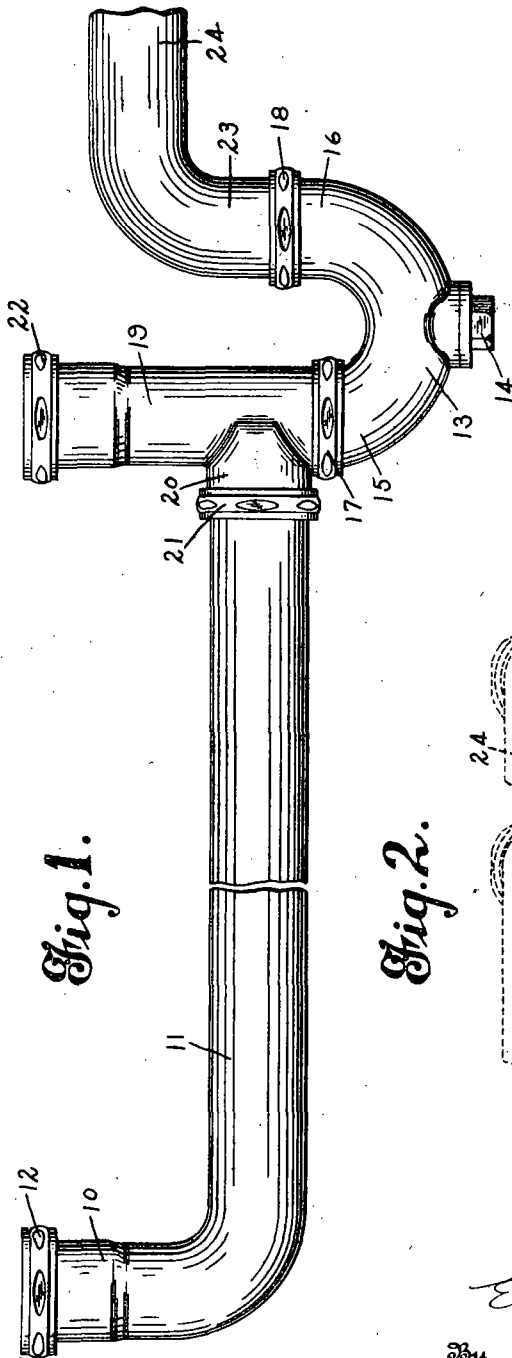
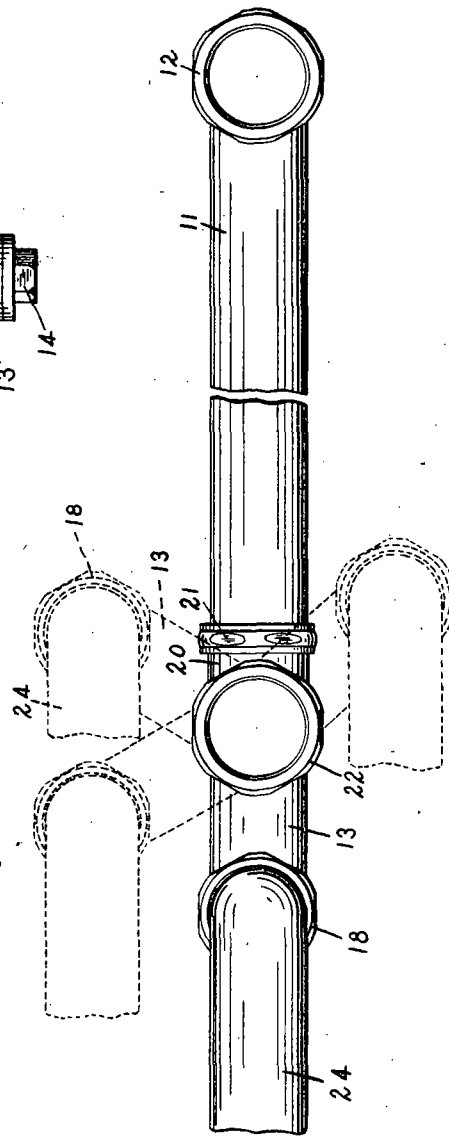


Fig. 2.



Inventor

Erastus G. Oakley

By *Rockwell + Bartholow*
Attorneys

UNITED STATES PATENT OFFICE.

ERASTUS G. OAKLEY, OF SOUTHPORT, CONNECTICUT, ASSIGNOR TO BRIDGEPORT
BRASS COMPANY, OF BRIDGEPORT, CONNECTICUT.

WASTE CONNECTION.

Application filed March 22, 1927. Serial No. 177,330.

This invention relates to waste connections for sinks, or the like, and is particularly adapted for use in connection with waste pipes for combined sinks and trays, or sinks having two outlets.

It is common at the present time, to employ plumbing fixtures which comprise combined sinks and trays, the two elements being combined in a unitary structure and having separate drain outlets. Usually these two drain outlets are connected to the same trap, and the waste is conducted through a single waste pipe from the trap for purposes of economy. When the usual form of trap is employed, there is a free air passage between the outlet of the tray and that of the sink, so that gas and odors from decaying matter in the connecting pipes may escape through these outlets into the room in which the fixture is installed.

I contemplate by my invention, the provision of such an arrangement to drain the sink and tray, that the horizontal connection leading from the tray outlet to the sink outlet will be sealed by the trap, so as to prevent the existence of an air passage from the tray outlet to the sink outlet.

Another object of my invention is to provide a more sanitary outlet for combined sinks and trays, or sinks having more than one outlet.

Another object of my invention is to provide an improved form of trap, which will not only seal, as far as possible, the outlet pipes connected to the sink, but will at the same time be capable of being turned at various angles relative to the connecting pipes.

A still further object of my invention is to provide a trap having a side inlet, and a swivel in each arm of the trap, so that the inlet will be effectually sealed and the trap may be disposed at various angles relative to the inlet and outlet pipes.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of a combined sink and tray waste, embodying my invention;

Fig. 2 is a top plan view of the part shown in Fig. 1, various positions of the trap being shown in dotted lines.

To illustrate a preferred embodiment of my invention, I have shown a tray outlet pipe 10, having a horizontally extending portion 11, leading to the trap inlet, as will be explained hereinafter. At the upper end of the part 10, a hexagonal union nut 12 is provided for connection with the tray plug or pipe leading therefrom.

The trap, in this instance, is in the usual P-shaped form. The lower part of this trap consists of a U-shaped base member 13, having a cleanout plug 14, and relatively short legs 15 and 16. At the upper ends of the legs, hexagonal union nuts 17 and 18 are provided, in order that a swivel connection may be made with the upper parts of the trap.

To the leg 15 is connected a T member 19, the connection being such that, as shown in Fig. 2, the trap member 13 may be set at any desired angle relatively to the axis of the member 19. This T member has a side inlet 20 connected to the pipe 11 by the union 21, and at its upper end is provided with a union 22, for connection to the sink plug. It will be noted that the T inlet 20 is considerably nearer the lower end of the T member than to the upper end, so as to provide an inlet well down upon this leg of the trap, as will be explained hereinafter.

The leg 16 of the U member 13 is connected to an L-shaped pipe 23 by means of the union nut 18, so that this pipe may be set at any desired angle relatively to the member 13. It will be apparent, therefore, that the trap contains a double swivel, its angular position being adjustable at both of the unions 17 and 18.

The pipe 23 has a horizontally extending portion 24, through which the waste is carried to the sewer from both the sink and tray. It will be apparent that the trap, in this instance, consists of the pipe 23, the U-shaped portion 13 and the T member 19. The member 13 provides only the lower portion of the trap, as it will be obvious that in use water will stand in the trap at the level of the lower side of the pipe 24. This level will be above the upper side of the inlet 20 and pipe 11, so that the inlet to the trap will be below the upper end thereof, or in other words, the trap will be provided with a side inlet below the normal level of the water standing therein. For this reason, the inlet to the trap will be sealed and odors

or gases from any foreign matter remaining in the pipe 11 will not be carried up through the pipes 10 and the T 19 to the sink and tray openings. These openings will be
5 sealed from each other by the water standing in the pipe 11, due to the fact that the level of this pipe is below the lower side of the pipe 24.

While I have shown a trap in the usual P
10 form, it will be understood, of course, that my invention may be embodied in a trap of S form, or any other form desired. Moreover, it will be obvious that while I have arranged to provide the trap with a side inlet, I have at the same time provided an arrangement which is extremely flexible, as
15 the lower portion of the trap is connected by a swivel joint at both its inlet and outlet ends. In this manner, only the lower part
20 of the trap is swiveled to the connecting structure and not the entire trap, as is the case in some installations.

While I have shown and described a preferred embodiment of my invention, it will
25 be understood that it is not to be limited to all of the details shown, but is capable of

modification and variation within the spirit of the invention and the scope of the appended claim.

What I claim is:

30 A combined sink and tray waste comprising a T member having a vertically disposed inlet for connection with the outlet of a sink or tray and a horizontally disposed inlet for
35 connection to the outlet of the other of said members, a U shaped trap member, a swivel connecting one end of the U shaped member to the outlet of the T member, said swivel being carried closely adjacent the horizontally
40 disposed inlet, an L shaped outlet member, a second swivel connecting the other end of the U member to said L shaped outlet, said second named swivel being carried
45 above the first named swivel, whereby when standard types of L fittings are secured to said second named swivel the outlet portion of the L member will be above the horizontal
inlet of the T member, whereby the latter
may be sealed by the water in the trap.

In witness whereof, I have hereunto set
my hand this 19th day of March, 1927.

ERASTUS G. OAKLEY.

No. 771,812.

PATENTED OCT. 11, 1904.

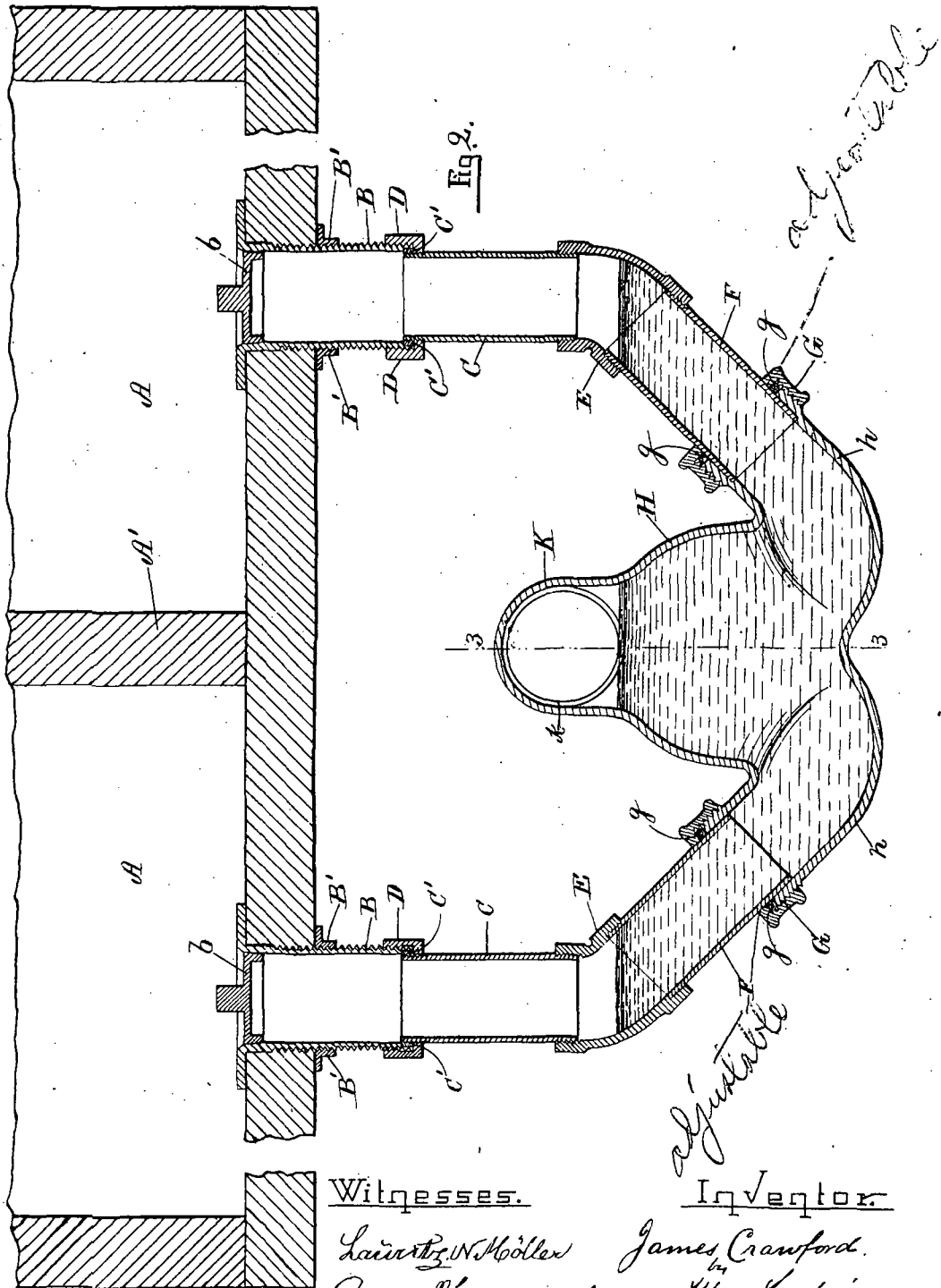
J. CRAWFORD.

TRAP.

APPLICATION FILED NOV. 18, 1903.

NO. MODEL.

2 SHEETS—SHEET 2.



Witnesses.

Lauritz W. Möller

Anna Wamnerich

Inventor

James Crawford

Alvan Andrieu
his atty.

UNITED STATES PATENT OFFICE.

JAMES CRAWFORD, OF BOSTON, MASSACHUSETTS.

TRAP.

SPECIFICATION forming part of Letters Patent No. 771,812, dated October 11, 1904.

Application filed November 16, 1903. Serial No. 181,303. (No model.)

To all whom it may concern:

Be it known that I, JAMES CRAWFORD, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Traps, of which the following is a specification.

This invention relates to improvements in traps particularly designed for two or more laundry trays, tubs, or sinks; and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 is a front elevation of the invention. Fig. 2 is a vertical longitudinal section of the same, and Fig. 3 is a cross-section on the line 3 3 shown in Figs. 1 and 2.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In Fig. 2, A A represent a pair of laundry trays or tubs, on which A' is the division-wall, as is usual in devices of this kind. Through a perforation in the bottom of each tray is inserted a thimble B, provided at its upper end with a removable valve-plug b, as shown. The said thimble is exteriorly screw-threaded and provided with a lock-nut B', adapted to be screwed against the under side of the tray, so as to secure said thimble to the bottom of the tray, as shown.

To the lower end of each thimble B is detachably secured a pipe C, the upper end of which is preferably screw-threaded and provided with a ring or collar C'.

D is a screw-threaded coupling by means of which the upper end of the pipe C is secured to the lower screw-threaded end of the thimble B, as shown in Fig. 2.

The pipe C is screw-threaded on its lower end and connected to a forty-five-degree elbow E, the lower screw-threaded end of which is similarly connected to an inclined pipe F, the lower end of which is adjustable in what is usually termed a "slip-joint," shown as composed of a coupling G, screw-threaded on its interior and screwed upon the upper end of an inclined branch h, the lower upturned end of which is connected to or made integral with a vertically-disposed cylindrical trap H, as

shown. By having the pipes F adjustable in the branches h h said pipes and their thimbles can be adjusted to fit the perforations in the bottom of the trays in case the outlets from the trap should not be centrally located between such thimble-perforations.

g is an annular packing interposed between the coupling G and the upper end of the branch h, so as to cause a water-tight connection between the pipe F and branch h.

The trap H is provided at front with a screw-threaded removable cap I, which is normally secured water-tight to said trap and capable of being removed from the latter when desired to cleanse the trap from impurities or obstructions, as may be needed from time to time, and this can readily be done by inserting the hand through the opening in the front of the trap after the cover I is removed.

At the upper rear end of the trap H is a horizontal discharge branch K, to which is connected a pipe k, leading to the sewer.

It will be noticed that the curved branches h h where they enter the trap H are located at inclinations to the vertical, by which the liquid discharged from one of the trays is caused to travel in a curved path within the trap before passing out therefrom, and if the contents of both trays should be simultaneously discharged the liquids entering the trap from the respective inclined branches will be intermixed, so as to break up any sediment or accumulations, and thus conduct freely the liquid and any residue that may exist therein out through the discharge-pipe leading to the sewer.

It will be noticed by reference to Fig. 2 that by the construction shown a liquid seal is obtained in the trap, causing the branches h h to be sealed by the liquid where they enter the trap, thus preventing sewer-gas from entering into the room where the sinks or trays are located.

In practice I connect the trap to a pair of trays, as shown; but, if so desired, additional branches may be attached to the discharge-pipes, if required, to utilize one and the same trap for a multiple of trays or sinks without departing from the essence of my invention.

What I wish to secure by Letters Patent and claim is—

The herein-described trap for laundry-tubs and the like, comprising a vertically-disposed
5 trap having an aperture at one side and a removable plug closing said aperture and an upper discharge-opening the lower edge of which is above the upper edge of said aperture, inclined branches communicating with the opposite
10 sides of the lower end of the trap, the under sides of the lower ends of said branches

being curved upwardly, endwise-adjustable pipes connected to said branches, and intermediate pipe connections to the tubs, substantially as described and for the purpose specified. 15

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES CRAWFORD.

Witnesses:

ALBAN ANDRÉN,
LAURITZ N. MÖLLER.

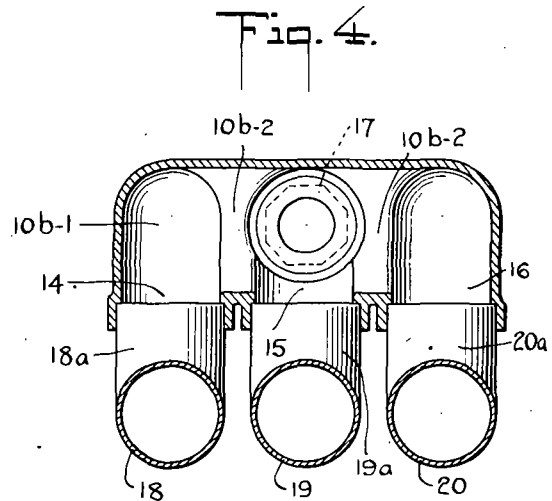
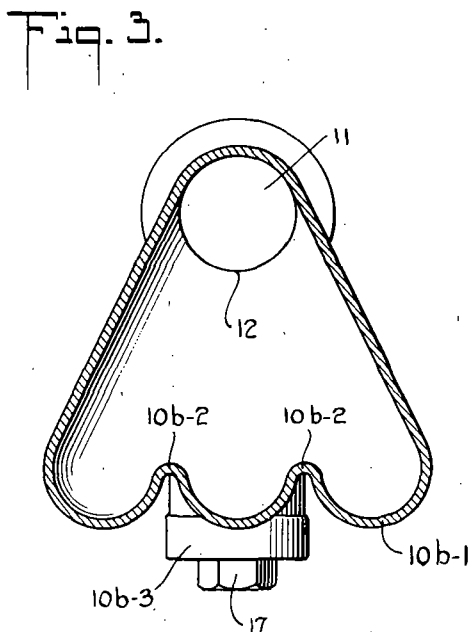
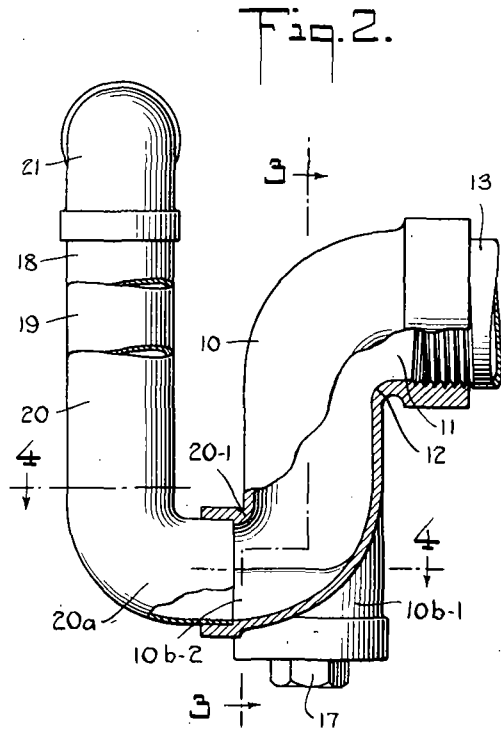
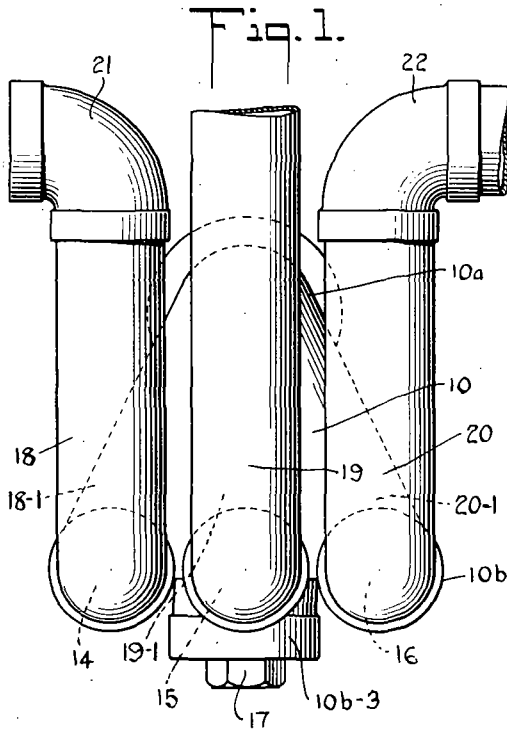
Sept. 23, 1941.

W. C. GROENIGER

2,256,758

DEVICE FOR TRAPPING WASTE OUTLETS

Filed Sept. 27, 1939



INVENTOR
William C. Groeniger
BY *Henry J. Locke*
HIS ATTORNEY

UNITED STATES PATENT OFFICE

2,256,758

DEVICE FOR TRAPPING WASTE OUTLETS

William C. Groeniger, Columbus, Ohio, assignor to
John B. Pierce Foundation, New York, N. Y., a
corporation of New York

Application September 27, 1939, Serial No. 296,773

4 Claims. (Cl. 182-18)

This invention relates to fixture trap devices useful in the plumbing art for stopping return flow of noxious gases from waste outlets, and in particular to fixture trap devices for trapping a plurality of waste outlets, in common, with respect to a single soil or other waste discharge pipe.

When several waste outlets are trapped in common with respect to soil, or other waste piping, it is customary practice to run the waste outlet piping into the trap device above the trap seal whereby free passage is afforded between the several waste outlets, one with the other or others, even though each is trapped relative to the soil or other waste piping. Such practice leads to air circulation through the freely interconnected waste outlets when the piping is heated, and to a consequent malodorous discharge of air from the waste drains of the plumbing fixtures when the piping has accumulated an internal coating of waste matter.

Further it is customary practice to so connect the waste outlet piping with the trap device as to direct flow therefrom at a relatively great angle to the general flow through the trap device, thus impeding, to a considerable extent, flow into and out of the trap device.

An object of the present invention, therefore, is to provide a trap device capable of trapping, in common, with respect to waste or soil piping, a plurality of waste outlets, and to, at the same time, trap the individual waste outlets, one with respect to the other or others.

An object is to provide a trap device which will unite the fluid streams flowing from the plurality of waste outlets while such streams are flowing in substantially the same direction substantially without flow restriction.

An object is to provide a novel type of pipe fitting for association with piping or with other pipe fittings in the formation of a trap device in accordance with the invention.

A feature of the invention resides in the provision for uniting, below the dip of the trap device, the streams from the individual down legs, so that they flow in merged relationship through the up leg.

Further features and objects of the invention will be apparent from the following detailed description.

In the drawing:

Fig. 1 represents a front elevation of one embodiment of fixture trap device pursuant to the invention.

Fig. 2 represents a side elevation, partly in

vertical section of the fixture trap device of Fig. 1.

Fig. 3 represents a vertical section taken on the line 3-3, Fig. 2.

Fig. 4 represents a horizontal section taken on the line 4-4, Fig. 2.

Fixture trap devices embodying the principle of and accomplishing the objects of the invention may assume various structural forms according to various general designs common in the art. For instance, the component parts, namely, the down leg means, the up leg means, and the U-bend means, may be formed integral, with appropriate provision for satisfactory installation and cleaning, according to construction practices common in the art. Or, the component parts may be structurally separated in various arrangements and joined to form the complete fixture trap device.

In the illustrated instance, the plurality of down legs are formed as individual pipe fittings, and are joined with a single up leg, formed as an individual pipe fitting, portions of each combining to provide the return bend or U-bend of the trap.

The up leg fitting 10 is formed as a hollow body which diverges downwardly from the elbowed upper end 10a, to the oppositely directed elbowed lower end 10b. The elbowed upper end 10a is arranged to provide an out flow opening 11 and the crown weir 12 of the fixture trap device. The walls defining the opening 11 may be internally threaded, or otherwise adapted to connect with outflow piping 13.

The oppositely directed elbowed lower end 10b is arranged to form a plurality of inflow openings, here illustrated as three, namely, 14, 15 and 16, disposed side by side in a rectilinear alignment which is perpendicular to the length of the body portion. Dips of the trap, see 18-1, 19-1, and 20-1, are provided by those wall portions which define the upper parts of the inflow openings 14, 15 and 16, respectively.

Preferably integrally from the bottom wall 10b-1 of the up leg fitting 10, and between those of the inflow openings 14, 15, and 16 which are mutually adjacent, separator walls 10b-2, 10b-2 rise upwardly. And preferably integrally from bottom wall 10b-1, advantageously centrally thereof, depends wall 10b-3 forming a clean out opening threaded or otherwise adapted to receive the clean out plug 17.

The down leg fittings correspond in number to the number of inflow openings in the up leg. In the illustrated instance there are three down

leg fittings 18, 19, and 20 corresponding, respectively, to the inflow openings 14, 15, and 16. Each of the down leg fittings 18, 19, and 20 has its lower end curved to form an elbow, as at 18a, 19a, and 20a, respectively. The elbowed lower ends of the down leg fittings connect with the inflow openings of the up leg as clearly shown in Figs. 2 and 4, thus, in combination with the elbowed lower end of the up leg, providing return bend or U-bend portions of the trap device.

The down leg fittings may be formed at their upper ends as found advantageous in the particular instance. As shown in Fig. 1, the two down leg fittings 18 and 20 are of shorter length than the intermediate down leg 19 and connect with inflow piping by means of elbow fittings 21 and 22.

As will be noted from the drawing, the elbows 18a, 19a, and 20a of the lower end portions of down leg fittings 18, 19 and 20, respectively, are preferably mutually parallel in their joinder with the up leg fitting, and the outflow openings thereof are consequently directed in the same direction.

The crown weir 12 controls the level of the liquid maintained as the trap seal, and, accordingly, each of the down legs are individually trapped as respects one another and are trapped in common as respects the outflow piping 13. Also, due to the peculiar structural characteristics of the device, the waste liquid flows without restriction through the down legs and unites below and adjacent the dips of the trap while flowing along substantially straight angles and in the same direction.

The upper portion of the up leg fitting 10, see Fig. 2, is advantageously of greater flow capacity than is the lower portion for accommodating simultaneous flow from the plurality of down legs.

While only one preferred embodiment of the invention is illustrated and described, it is to be distinctly understood that a great many structural changes may be made without departing from the generic spirit and scope of the invention as set forth herein and in the following claims.

I claim:

1. In a fixture trap device for trapping a plurality of waste outlets, a plurality of individual down legs, and a single up leg serving the said

plurality of down legs in common, said plurality of down legs connecting with the said single up leg below the dip of the trap device.

2. In a fixture trap device for trapping a plurality of waste outlets, a plurality of individual down legs, and a single up leg serving the said plurality of down legs in common, said single up leg diverging downwardly from the crown weir thereof, and said plurality of down legs connecting with the said up leg below the dip of the trap device and side-by-side in substantially mutually parallel relationship.

3. A fixture trap device for trapping a plurality of waste outlets comprising a single up leg fitting having an outflow opening and crown weir formed at its upper end, and having an elbowed lower end provided with a plurality of inflow openings adapted for connection, respectively, with the lower ends of a corresponding number of down leg fittings, and a plurality of down leg fittings corresponding in number to the number of said inflow openings, and having elbowed lower ends which connect, respectively with the said inflow openings of said up leg fitting, said inflow openings being disposed in substantially side-by-side rectilinear alignment, and said elbowed lower ends of the down legs being disposed in substantially mutually parallel relationship.

4. A fixture trap device for trapping a plurality of waste outlets comprising a single up leg fitting having an outflow opening and crown weir formed at its upper end, and having an elbowed lower end provided with a plurality of inflow openings adapted for connection, respectively, with the lower ends of a corresponding number of down leg fittings, a plurality of down leg fittings corresponding in number to the number of said inflow openings, and having elbowed lower ends which connect, respectively, with the said inflow openings of said up leg fitting, said inflow openings being disposed in substantially side-by-side rectilinear alignment, and said elbowed lower ends of the down legs being disposed in substantially mutually parallel relationship, and separator walls rising upwardly from the bottom wall of said elbowed lower end of the single up leg fitting between mutually adjacent inflow openings.

WILLIAM C. GROENIGER.

No. 773,569.

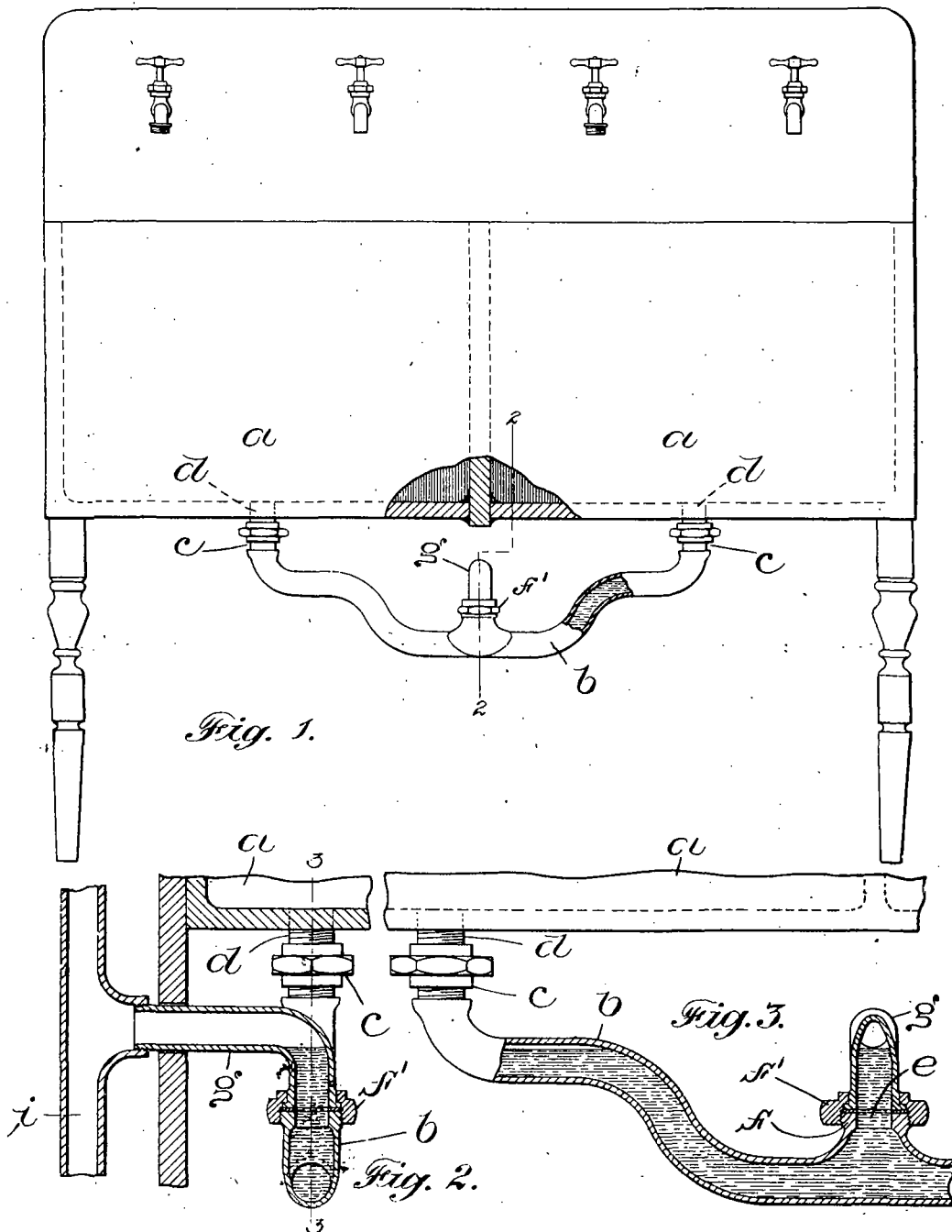
PATENTED NOV. 1, 1904.

J. HOLMES.

TRAP AND WASTE OUTLET FOR SET TUBS, &c.

APPLICATION FILED OCT. 27, 1903.

NO MODEL.



Witnesses:
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E. Batchelder

Inventor:
John Holmes
by Wright, Pomeroy & Quincy
Attys.

UNITED STATES PATENT OFFICE.

JOHN HOLMES, OF BOSTON, MASSACHUSETTS.

TRAP AND WASTE-OUTLET FOR SET TUBS, &c.

SPECIFICATION forming part of Letters Patent No. 773,569, dated November 1, 1904.

Application filed October 27, 1903. Serial No. 178,729. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOLMES, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Traps and Waste-Outlets for Set-Tubs, &c., of which the following is a specification.

This invention has for its object to provide a simple and effective trap for connecting the outlets of two receptacles, such as a pair of set tubs, with a waste-pipe in such manner as to securely trap the outlet and guard against the admission of sewer-gas.

A further object of the invention is to provide a trap of this character which may be readily varied in length to accommodate the distance between the outlets or holes formed in the bottoms of the two tubs.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation, partly in section, showing a pair of set tubs provided with a trap and waste-outlet embodying my invention. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a section on line 3 3 of Fig. 2.

The same reference characters indicate the same parts in all the figures.

In the drawings, *a a* represent a pair of set tubs located side by side. My improved trap and waste-outlet comprises a curved body-section *b*, having raised ends which are provided with coupling members *c c* for engagement with the outlets *d d* of the tubs *a a*. Said coupling members may be of any suitable construction which will permit the convenient detachable connection of the body-section *b* with the outlets *d d*. The central portion of the section *b* is depressed below the ends thereof and is provided with an outlet *e* and with a coupling member *f*, surrounding said outlet. The outlet and coupling member are located below the raised ends of the section *b*. *g* represents a waste-pipe, which is preferably elbow-shaped, as shown in Fig. 2, the lower end being connected by a coupling-nut *f'* with the coupling member *f*. The waste-pipe extends upwardly from the joint formed by its receiving end and the outlet *e* and horizon-

tally rearwardly to communicate with a suitable discharge-pipe *h*.

It will be seen that the joint between the outlet *e* and the waste-pipe is considerably lower than the ends of the section *b* and lower than the highest part of the waste-pipe, so that a sufficient quantity of liquid is entrapped to rise above the said joint and prevent the escape of sewer-gas thereat, any imperfection at said joint being indicated by leakage of water instead of sewer-gas.

Owing to the fact that the waste-pipe *g* extends horizontally after rising from the joint which connects it with the trap, I avoid all liability of emptying the trap by siphonage, although the couplings *c* and the outlets *d* of the tubs are at substantially the same height. Since the two outlets *d* are both at the bottoms of the tubs and in the same plane or at the same height, there could be no entrance of air through either one of them to break a siphonage starting in the trap until so much liquid in the trap had been withdrawn as to destroy the seal. The horizontal portion of the waste-pipe prevents the siphoning of the trap.

The improved trap is not only simple and effective, but presents a very neat and symmetrical appearance.

The described trap presents a continuous passage having no pockets in which deposits can lodge. Hence the trap is kept clean by the flushing action of the liquid passing through it.

The trap besides being neat and symmetrical in appearance is very compact and reduces to the minimum the extent of pipe which is exposed above the level of the water standing in the trap. The portions of pipe between the tub-outlets and the water standing in the trap are the portions which become most quickly fouled, and these portions in my improved trap are very short, as shown in Fig. 3.

The body-section *b* can be readily removed to permit the cleansing of its interior and of the outlets *d d*.

The improved trap is very economical in construction.

As is well known, set tubs are usually furnished to plumbers by the manufacturers who work up the stone of which said tubs are usu-

ally constructed. It is practically impossible to form the outlets or holes d d in the two tubs always at the same distance apart. In order to enable my improved trap with the double connection to be applied by any plumber to the set tubs furnished to him, I form the curved body-section so that it may be readily lengthened or shortened by a simple bending of the said section. The section b is, as usual, made of lead, which is of course ductile and will permit it to be bent. As shown in the drawings, the section b is irregularly curved. By straightening out the curves or by increasing them the ends may be brought nearer together or spread farther apart, so that the couplings c , to which the ends of the section b are connected, may be easily fitted to the outlets d d . Moreover, the structure permits of the curved section being bent laterally, so as to suit the distance at which the tubs may be set from the wall or the distance at which the discharge-pipe i is located behind the wall of the room.

By disconnecting the couplings c and f the trap as a whole may be readily lifted out by hand for cleaning purposes, as will be readily understood.

It is to be further noted that the construction of the trap as a whole is such that when water is flowing out from one of the two tubs it cannot cause any air from the trap to pass into the other tub, for the reason that there is a seal formed each side of the center of the coupling.

I claim.—

1. A trap and waste-outlet for set tubs, &c., comprising, first, a body-section of ductile material adjustable in length and provided with coupling members for engagement with tub-outlets, and a central portion depressed below said ends and provided with an outlet and with a coupling member surrounding said outlet, both located below the said raised ends; and secondly, a waste-pipe coupled to and extending above the said outlet.

2. A trap and waste-outlet for set tubs, &c., comprising, first, an irregularly-curved body-section of ductile material having raised ends provided with coupling members for engaging with tub-outlets, said irregularly-curved section enabling the distance between its ends to be varied, and a central portion depressed below said ends and provided with an outlet and with a coupling member surrounding said outlet, both located below the said raised ends; and secondly, a waste-pipe coupled to and extending above the said outlet, the joint between the waste-pipe and outlet being below the raised ends of the body-section and below the widened portion of the waste-pipe.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN HOLMES.

Witnesses:

C. F. BROWN,
E. BATCHELDER.

No. 880,156.

PATENTED FEB. 25, 1908.

R. C. McCaffrey.
TRAP FOR BASINS, SINKS, &c.
APPLICATION FILED JAN. 25, 1907.

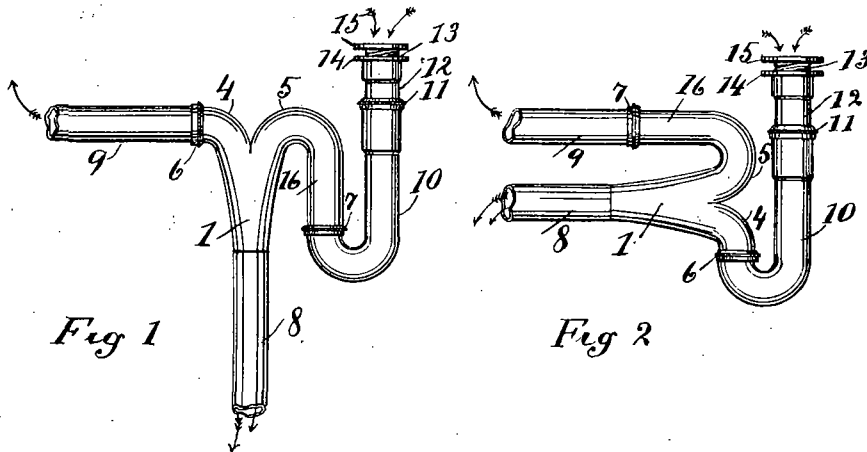


Fig 1

Fig 2

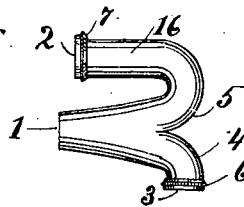


Fig 3

WITNESSES:

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RICHARD C. McCAFFREY, OF SPOKANE, WASHINGTON.

TRAP FOR BASINS, SINKS, &c.

No. 880,156.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed January 25, 1907. Serial No. 354,141.

To all whom it may concern:

Be it known that I, RICHARD C. McCAFFREY, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented a new and useful Improvement in Traps for Basins, Sinks, &c., of which the following is a specification.

My invention relates to improvements in traps for basins, sinks, etc., in which a ventilating pipe joins the waste pipe at an angle towards its outlet; and the objects of my improvement are to provide, first, a ventilating pipe that will not be obstructed by the liquid and solid matter passing from the trap into the waste pipe entering and being deposited therein, closing the vent and producing a siphoning of the contents of the trap; and second, an interchangeable trap fitting adapted to form with equal facility and advantage a **P**- or an **S**-trap.

My invention consists in the peculiar construction and combination of parts, of which the following is a full, clear and exact description.

Figure 1 is a view of the trap fitting as it appears in the construction of an **S**-trap. Fig. 2 is a view of the trap fitting as it appears in the construction of a **P**-trap. Fig. 3 is a view of the interchangeable trap fitting detached.

The same reference characters represent the same parts in the different views.

The trap fitting consists of a main pipe or conduit 1 formed by the junction of two pipes, 4 and 5, at an acute angle, which pipes extended form two arms, one preferably longer than the other, the short arm making a quarter bend and the longer arm a full return bend. It will be observed that the junction of the two pipes at an acute angle forms a transverse tongue or partition across the center of the main pipe formed by said junction, and the diameter of the main pipe at the point where the two pipes meet is equal or about equal to the sum of the diameters of the two pipes. This main pipe can then be extended with a uniform diameter to a connection with an outlet pipe of the same size, or can be gradually contracted to connect with an outlet pipe of any suitable diameter.

In applying the trap-fitting to form an **S**-trap (Fig. 1), the long arm 16 is connected at 7 with the return bend on the bottom of

the trap, and, together with the pipes 1, 8 and 10, forms the waste pipe or outlet. The short arm is connected at 6 with the vent pipe 9, forming the ventilating pipe of the **S**-trap. In applying the trap fitting to form a **P**-trap (Fig. 2), the short arm is connected at 6 with the return bend on the bottom of the trap, forming, with pipes 1, 8 and 10, the waste pipe or outlet. The long arm 16 is connected at 7 with the vent pipe 9, forming the ventilating pipe of the **P**-trap. It will be noted that the function of the short arm and long arm of the trap-fitting is reversed in applying the fitting to form a **P**-trap and an **S**-trap. The numerals 11 to 15 inclusive represent the inlet and bowl or sink connections.

In each style of trap, the **P**-trap and **S**-trap, Figs. 1 and 2, the tongue or partition formed by the junction at an acute angle of the pipes 4 and 5 prevents the liquid and solid matter in passing through the trap into the waste pipe or outlet from entering the vent pipe and depositing waste matter therein; but the liquid waste is diverted from the vent pipe directly into the outlet and a current created which forces the same on towards the outlet. The main pipe 1 being enlarged at the junction of the pipes 4 and 5 also tends to prevent any back-wash into the vent pipe.

Having thus fully described my invention, I claim and desire to secure by Letters Patent—

1. A trap fitting for basins, sinks, etc., consisting of a main pipe or conduit having two oppositely disposed and bent branches joining the main stem at an acute angle and extending in the same direction, one branch having a half bend and the other branch having a full return bend at the junction of the two branches with the main stem, the said branches being of such a length that when either is attached to the return bend at the bottom of a trap the crown of the waste pipe will be below the outlet of the sink or basin.

2. A trap fitting for basins, sinks, etc., consisting of a main pipe or conduit having two oppositely disposed and bent branches joining the main stem at an acute angle and extending in the same direction, one branch having a half bend and the other branch having a full return bend at the junction of

the two branches with the main stem, there
being a lateral enlargement at said junction,
and the said branches being of such a length
that when either is attached to the return
5 bend at the bottom of a trap the crown of the
waste pipe will be below the outlet of the
sink or basin.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

RICHARD C. McCAFFREY.

Witnesses:

F. L. PRESCOTT,
LESLIE F. PRESCOTT.